

LSI DOCKET NO. 03-2597

**CLAIMS:**

**What is claimed is:**

1. A method for protecting data as it passes through a buffering device that connects  
5 protocols that use different block sizes or unblocked data, said method comprising:  
receiving data on a first port;  
storing said data in a first memory in said buffering device such that said data is stored in  
a plurality of blocks, each block having a length of  $2^n$ , where n is a positive integer;  
calculating a first cyclical redundancy code for each of said plurality of blocks as each of  
10 said plurality of blocks is written;  
when a first block of said plurality of blocks is completed, storing a corresponding first  
cyclical redundancy code in a second memory on said buffering device; and  
when writing said data to a second port, computing a second cyclical redundancy code for  
each of said blocks of said plurality of blocks and if said second cyclical redundancy code  
15 corresponding to a given block is equal to said first cyclical redundancy code corresponding to  
said given block, writing said given block to said second port.
2. The method of Claim 1, wherein the data is received with a protection code that is  
checked and discarded.  
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3. The method of Claim 1, wherein said buffering device is a DDR device connected  
between a bus and a tape drive.
4. The method of Claim 1, wherein one of said first and said second ports is connected to a  
25 protocol that does not use fixed block lengths.
5. The method of Claim 1, wherein locations in said second memory are mapped to  
locations in said first memory.

LSI DOCKET NO. 03-2597

6. The method of Claim 1, wherein padding can only be added to said storage at the beginning and at the end of the transmission.

7. A device for buffering data between two protocols, at least one of which does not utilize blocks, said device comprising:

a first port connected to communicate using a first protocol of said two protocols;

a second port connected to communicate using a second protocol of said two protocols;

a cyclical redundancy code engine connected to be selectively connected to one of said first port and said second port;

a first random access memory connected to said cyclical redundancy code engine and in which data passing between said first port and said second port is stored in fixed size blocks;

a second random access memory connected to said cyclical redundancy code engine and in which first cyclical redundancy codes corresponding to said fixed size blocks are stored; and

a comparator connected to compare a second cyclical redundancy code calculated as said fixed size blocks are written with said first cyclical redundancy code calculated when said fixed size blocks were written;

whereby the data passed through said device is protected by a cyclical redundancy code.

8. The device of Claim 7, wherein said cyclical redundancy codes are stored in said second random access memory in a mapped relationship to said fixed size blocks stored in said first random access memory.

9. The device of Claim 7, further comprising a protection module connected to said first port for checking a protection code that is received and discarding said protection code.

10. The device of Claim 7, wherein locations in said second random access memory are mapped to locations in said first random access memory.

LSI DOCKET NO. 03-2597

11. The device of Claim 7, wherein padding can only be added to said storage at the beginning and at the end of the transmission.

12. A computer program product on a computer-readable device, comprising the computer  
5 implemented steps of:

first instructions for receiving data on a first port;

second instructions for storing said data in a first memory in said buffering device such  
that said data is stored in a plurality of blocks, each block having a length of  $2^n$ , where  $n$  is a  
positive integer;

10 third instructions for calculating a first cyclical redundancy code for each of said plurality  
of blocks as each of said plurality of blocks is written;

fourth instructions for storing, when a first block of said plurality of blocks is completed,  
a corresponding first cyclical redundancy code in a second memory on said buffering device; and

15 fifth instructions for computing, when writing said data to a second port, a second cyclical  
redundancy code for each of said blocks of said plurality of blocks and if said second cyclical  
redundancy code corresponding to a given block is equal to said first cyclical redundancy code  
corresponding to said given block, writing said given block to said second port.

13. The computer program product of Claim 12, wherein said first instructions check a  
20 protection code received with the data and discarded said protection code.

14. The computer program product of Claim 12, wherein said computer program product is  
embodied on a protocol interface device connected between a bus and a tape drive.